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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/027,667

12/21/2001

Mario Elmen Tremblay

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05/09/2006

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EXAMINER

WILKINS III, HARRY D

ART UNIT

PAPER NUMBER

1742

DATE MAILED: 05/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/027,667	Applicant(s) TREMBLAY ET AL.	
	Examiner Harry D. Wilkins, III	Art Unit 1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29,31,32 and 41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29,31,32 and 41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 13 October 2005 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 41 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 41 recites the limitation "said filter" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1742

6. Claims 1, 3, 4, 22, 23 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kelley (US 6,306,281) in view of Spence (US 4,414,070).

Kelley teaches (see figure and abstract) an apparatus for electrolyzing an electrolytic solution including a non-membrane (barrier) cell including an anode and cathode defining a passage formed there between, an inlet port, an outlet port and a direct current supply (not shown in figure, see col. 2, lines 65-67).

Regarding the limitation that the power supply delivers less than about 2.7 watts of power, this limitation is not further limiting on the apparatus claim because the above limitation deals with the manner or method of use of the claimed apparatus. It has been well settled that the manner or method of use of an apparatus cannot be relied upon to further limit claims to the apparatus itself. See *In re Casey*, 152 USPQ 235, and MPEP 2114. The apparatus of Kelley is fully capable of operating at any power requirement. As further evidence that the wattage supplied is a method limitation, it can be seen from examples 1 and 15 that increasing the production rate from 50 cc/min to 78.86 cc/min (30 gallons per day) requires the wattage to be increased from 30 watts to 240 watts. Thus, for a decreased flow rate, one of ordinary skill in the art would have expected to have used a smaller amount of energy, such as the claimed less than about 2.7 watts, and hence, the apparatus of Kelley is capable of operating at less than about 2.7 watts.

Regarding the limitation that the apparatus "achieves a Productivity Index of at least 245 during electrolyzation of said solution", this limitation is not further limiting on the apparatus claim because the limitation deals with the manner or method of use of the claimed apparatus. It has been well settled that the manner or method of use of an

Art Unit: 1742

apparatus cannot be relied upon to further limit claims to the apparatus itself. See *In re Casey*, 152 USPQ 235, and MPEP 2114. The apparatus of Kelley is fully capable of operating in the claimed fashion.

Thus, Kelley does not teach that the passage between the anode and cathode is less than about 0.6 mm in size.

However, Spence teaches (see col. 1, lines 24-29) that the efficiency of electrolytic cells is dependent upon the anode-cathode distance, and that as the distance decreases the efficiency increases.

Therefore, it would have been within the expected skill of a routineer in the art to have modified the apparatus of Kelley to use as small an anode-cathode gap as possible, such as less than 0.6 mm as claimed because Spence teaches that decreased anode-cathode gap improves efficiency.

Regarding claim 3, the apparatus further includes a pump for moving electrolytic solution (figure 1).

Regarding claims 4, it would have been obvious to one of ordinary skill in the art to have recirculated the electrolytic solution because recycling is an obvious engineering design improvement that comes from efficiency and economic design considerations (i.e.-it is within routine skill in the art to recycle fluid through a "reactor" to increase yield). Changing economic considerations do not make obvious expedient into unobvious improvement. *Ex parte Fuller*, 172 USPQ 317.

Regarding claims 22 and 23, it would have been obvious to one of ordinary skill in the art to have added a water sensor for automatically turning the electrolytic cell on

Art Unit: 1742

and off because such automatic switch is an obvious engineering design improvement that comes from efficiency and economic design considerations (i.e.-it is within routine skill in the art to add an automatic on/off control to prevent wasting power when water is not available and to remove any manual activity in the process).

Regarding claim 32, Kelley does not teach the anode surface area is less than 30cm^2 . However, changes in size absent a showing of unexpected results have been held to be mere routine experimentation and within the skill of a routineer in the art. See MPEP 2144.04.IV.A. Therefore, it would have been obvious to one of ordinary skill in the art to have made the electrolytic cell of Kelley small enough to have a anode surface area of less than 30 cm^2 as claimed in order to adjust the total output of the electrolytic cell to the desired amount.

7. Claims 1-4, 22-24, 29, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herrington et al (US 6,261,464) in view of Spence et al (US 4,414,070).

Herrington et al teach an apparatus for electrolyzing an electrolytic solution comprising:

(a) a non-barrier electrolytic cell comprising:

- (1) an anode (col. 5, line 54);
- (2) a cathode, said anode and cathode defining a "cell volume" formed therebetween (cathode at Fig. 1 (106) and passage is between 106 and anode as outer electrode;.

Art Unit: 1742

(3) a port (for example Fig. 4, 146) communicating with the cell volume used to both receive a flow of electrolytic solution and also for providing an exit for the flow of electrolytic solution having been electrolyzed; and,
(b) a direct current supply providing an electrical current from said anode to said cathode, wherein said current supply delivers less than about 5 watts of power, wherein the electrical current electrolyzes the electrolytic solution (Fig. 1, 102).

The difference between the apparatus of Herrington et al and the present invention is that the present invention is a continuous-process apparatus for performing the same function as the prior art batch-process apparatus of Herrington et al.

However, it has been held that it is within the ordinary skill in the art to adapt a batch-type process/apparatus to be used in a continuous process/apparatus. Please see MPEP 2144.04.V.E. In order to operate the apparatus of Herrington et al in a continuous manner, one of ordinary skill in the art would have added a second (outlet) port for discharging solution so that the solution may be fed continuously through the first (inlet) port.

Regarding the limitation that the power supply delivers less than about 2.7 watts of power, this limitation is not further limiting on the apparatus claim because the above limitation deals with the manner or method of use of the claimed apparatus. It has been well settled that the manner or method of use of an apparatus cannot be relied upon to further limit claims to the apparatus itself. See *In re Casey*, 152 USPQ 235, and MPEP 2114. The apparatus of Herrington et al is fully capable of operating at any power requirement.

Regarding the limitation that the apparatus "achieves a Productivity Index of at least 245 during electrolyzation of said solution", this limitation is not further limiting on the apparatus claim because the limitation deals with the manner or method of use of the claimed apparatus. It has been well settled that the manner or method of use of an apparatus cannot be relied upon to further limit claims to the apparatus itself. See *In re Casey*, 152 USPQ 235, and MPEP 2114. The apparatus of Herrington et al is fully capable of operating in the claimed fashion.

Thus, Herrington et al does not teach that the passage between the anode and cathode is less than about 0.6 mm in size.

However, Spence teaches (see col. 1, lines 24-29) that the efficiency of electrolytic cells is dependent upon the anode-cathode distance, and that as the distance decreases the efficiency increases.

Therefore, it would have been within the expected skill of a routineer in the art to have modified the apparatus of Herrington et al to use as small an anode-cathode gap as possible, such as less than 0.6 mm as claimed because Spence teaches that decreased anode-cathode gap improves efficiency.

Regarding claims 32, while Herrington et al fail to expressly disclose the anode surface area, it would have been considered to inherently be less than about 30 cm² because Herrington et al is described as a portable water disinfection system which is the size of a pen. One of ordinary skill in the art would have recognized an electrode surface area which can fit in a chamber the size of a pen would be less than 30 cm² in size.

Regarding claims 2, 24, 29 and 31, Herrington et al teach that the apparatus comprises a body which contains the electrolytic cell and power supply (Fig. 1, 108), a current supply such as a battery or a solar cell (col. 8, lines 1-5); a travel water purification device (i.e.-“portable”; Abstract); is adapted to remove impurities (Abstract); and is adapted to kill microorganisms (col. 4, lines 18-25).

Regarding claim 3, as part of making the apparatus continuous, one of ordinary skill in the art would have added means, such as a pump or other motive device, to cause the electrolyte to flow through the electrolytic cell.

Regarding claims 4, it would have been obvious to one of ordinary skill in the art to have recirculated the electrolytic solution because recycling is an obvious engineering design improvement that comes from efficiency and economic design considerations (i.e.-it is within routine skill in the art to recycle fluid through a “reactor” to increase yield). Changing economic considerations do not make obvious expedient into unobvious improvement. *Ex parte Fuller*, 172 USPQ 317.

Regarding claims 22 and 23, it would have been obvious to one of ordinary skill in the art to have added a water sensor for automatically turning the electrolytic cell on and off because such automatic switch is an obvious engineering design improvement that comes from efficiency and economic design considerations (i.e.-it is within routine skill in the art to add an automatic on/off control to prevent wasting power when water is not available and to remove any manual activity in the process).

8. Claims 5-21 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herrington et al (US 6,261,464) in view of Spence (US 4,414,070) as applied to

Art Unit: 1742

claims 1-4, 22-24, 29, 31 and 32 above, and further in view of Weakly et al (US 2002/0157966).

Herrington et al does not teach a filter such as activated carbon or resin which can filter out harmless materials.

Weakly et al teach (see paragraphs 35 and 49) a specific filter such as activated carbon or resin which can filter out arsenic.

Therefore, it would have been obvious to one of ordinary skill in the art to have modified the apparatus of Herrington et al to include the filter material of Weakly et al because Weakly et al teach that the filter removes arsenic from the treated water which would have minimized contaminants for the end user of the treated water of the process of Herrington et al.

It should be noted that the specific rate or degree of filtration is a method limitation which does nothing to further define the structure in apparatus claims. The apparatus must merely be capable of operating at the specific operating conditions which appears to be the case with the apparatus of Weakly et al. The specific filtration properties would have been considered a result effective variable by one having ordinary skill in the art. As such, one having ordinary skill would have routinely optimized the pressure of the chamber to obtain the purification attendant therewith. *In re Boesch* and *In re Aller*.

9. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herrington et al (US 6,261,464) in view of Spence (US 4,414,070) as applied to claims 1-4, 22-24, 29, 31 and 32 above, and further in view of Beer (US 3,632,498).

Art Unit: 1742

The teachings of Herrington et al are described above.

However, Herrington et al do not teach that the electrode is a foil electrode comprising a group VIII metal.

Beer teaches (see abstract and claims 1 and 3) a composite electrode including a conductive base with a foil of an active material such as palladium, platinum, rhodium, iridium, ruthenium or osmium (group VIII metals) on the surface. Beer teaches that this electrode is useful in processes including purification of water and has a long life, low overvoltage and catalytic properties.

Therefore, it would have been obvious to one of ordinary skill in the art to have used the composite electrode of Beer for the anode of Herrington et al because the electrode of Beer is useful in water purification and has a long life, low overvoltage and catalytic properties.

10. Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herrington et al (US 6,261,464) in view of Spence (US 4,414,070) as applied to claims 1-4, 22-24, 29, 31 and 32 above, and further in view of Graham et al (US 5,937,641).

The teachings of Herrington et al are described above.

However, Herrington et al do not teach that the electrode is a porous metallic anode.

Graham et al teach (see col. 8, lines 1-23) a porous metallic foam useful in a catalytic converter. The porous foam is capable of withstanding high temperatures and vibrations.

Art Unit: 1742

Therefore, it would have been obvious to one of ordinary skill in the art to have used the porous material of Graham et al for the anode of Herrington et al because the porous material of Graham et al resists vibrations and also provides a high surface contact area for electrolytic reaction.

Response to Arguments

11. Applicant's arguments filed 13 October 2005 have been fully considered but they are not persuasive. Applicant argued that the prior art does not teach a "Productivity Index" of at least 245.

In response, this new claim limitation is still related to the manner of operation of the claimed apparatus. Applicant is once again reminded that apparatus claims must be distinguished from the prior art in terms of their structure, not by the manner of operation. See MPEP 2114.

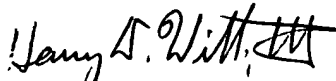
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D. Wilkins, III whose telephone number is 571-272-1251. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V. King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1742

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Harry D Wilkins, III
Primary Examiner
Art Unit 1742

hdw